FINDING OF NO SIGNIFICANT IMPACT

North Rim Campground Rehabilitation and Water Distribution System Improvements
Grand Canyon National Park

Grand Canyon National Park proposes to rehabilitate the North Rim campground including actions such as resurfacing roads, removing the existing fee collection kiosk and replacing it with a larger fee collection station near the existing parking area, rehabilitating existing restrooms, and constructing new restrooms in the group site. Grand Canyon National Park also proposes to improve the North Rim water distribution system, including the establishment of a fire protection system by replacing undersized and leaking antiquated piping, adding or replacing fire hydrants where necessary, upgrading a pressure booster (pumping) station, and connecting existing reclaimed water piping hydraulically to the potable water system. The campground proposal is needed to address poor road conditions, a registration kiosk that is too small and does not meet current needs, vehicle stacking in front of the camper store and vehicle exit from the campground, and inadequate restroom facilities. The water distribution system proposal is needed to address inadequacies in delivery volume and pressure throughout the potable water distribution system, leaking pipes and an inadequate number of fire hydrants.

In March 2003 the National Park Service (NPS) prepared an *Environmental Assessment/Assessment of Effect (EA/AEF) for the North Rim Campground Rehabilitation and Water Distribution System Improvements.* This EA/AEF, in accordance with the National Environmental Policy Act, analyzes the impacts that would likely result from implementation of the project. The environmental assessment evaluated three alternatives, Alternative A (No Action), Alternative B and Alternative C (Preferred).

PREFERRED ALTERNATIVE

Under the Preferred Alternative, the existing fee collection kiosk would be removed and a new walk-up campground registration building would be constructed. The new building would be up to approximately 256 square feet in size and would have a covered porch and a walk-up registration window. The design of the building would be in accordance with the Secretary of the Interior's Standards for the Treatment of Historic Properties due to its location within the North Rim Inn and Campground Historic District.

A sign would be placed at the entrance to the existing campground parking area to direct campground visitors to the registration building. Some stone curbing along the parking area would be extended and a small segment of trail would be realigned around the new building. The new registration building would be constructed partly within the existing parking area, minimizing the extent of new ground disturbance. Visitors would be directed to park in the existing parking area and walk up to the registration building to register. There would be no drive-thru registration. The construction of a new registration building would result in minimal ground disturbance, estimated at less than 0.25 acres. Up to 5 trees may need to be removed to accommodate the new building and the designation of recreational vehicle (RV) parallel parking spaces within the existing parking area.

Under either action alternative, the following actions would be implemented:

Water Distribution System Improvements – The existing water distribution system would be upgraded to a single source with dual piping system. The majority of the existing potable water lines would be replaced with new piping and installed deeper in the soil to prevent freezing. Generally, these lines would be placed in new trenches adjacent to the existing lines where feasible, and/or in areas previously disturbed and free of trees to minimize the need for vegetation disturbance. Some lines, such as the spur line into the campground would be installed under existing roads. Approximately 2.5 acres of ground would be disturbed to install the new pipeline along the existing potable water system, some of this new ground disturbance and some of this in previously disturbed areas. Trenches would be approximately 4 feet wide when two pipes are being installed (limited to the area between the water tanks and the campground) and 2-3 feet wide for the remainder of the pipeline (where only one pipe is installed). Trenches would be approximately 54 inches deep to allow 42 inches of cover over the pipe and may extend into limestone at some locations. Some trees would need to be removed as a result of the new trenching but would be minimal. Based on cursory field inspection of the alignment, up to approximately 20 trees would need to be removed for the new trenching. Most of these trees would be less than 12 inches in diameter and would be both ponderosa pine and aspen.

The reclaimed water system already in place on the North Rim but not being used to its fullest extent would be disconnected from the wastewater treatment plant and connected to the potable water system. Potable water would then be used for domestic water consumption and fire protection through the potable piping system, and for fire protection through the existing reclaimed pipeline. The potable water system would supply water to the fire protection system through a backflow preventer at all interconnections to allow potable water to flow into the reclaimed pipeline but not to flow out of it. The existing reclaimed piping could be easily reconnected to the reclaimed water source in the future, should uses for reclaimed water be developed and should improved reclaimed water storage and pressure boosting systems be installed. The existing reclaimed water pipeline is in good condition and does not need to be replaced. No new ground disturbance would be necessary for connection of the reclaimed line to the potable line; all work would occur in existing disturbed areas (i.e. in paved areas or between paved areas and buildings).

An improved pumping station would be installed in the existing pump house near the potable water tanks to boost the pressure of the system, specifically to eliminate existing low water pressure and inadequate fire flows in the administration area and the campground area. The pump station would be designed to meet domestic water and fire system demands on the improved potable water pipeline as well as fire system demands on the reclaimed water pipeline. Gravity pressure would continue to feed the lodge area for fire protection through the existing reclaimed pipeline and for domestic water needs and fire system demands through the improved potable water pipeline. Approximately 22 existing fire hydrants would be reused as part of this project, approximately 11 would be replaced and approximately four new fire hydrants would be installed. This project would be implemented in phases, as funding becomes available, and would be staggered over the next several years.

Campground Road Repaving and Accessibility Upgrades – Existing paved campground roads would be re-surfaced in kind, for a total of approximately 1.3 miles of resurfacing. Existing material may be salvaged and re-used as base material if economically feasible.

There are currently two campsites that are designated as accessible sites in the North Rim Campground. These two sites would be converted/rehabilitated to universally accessible camping sites and three additional campsites would be converted to accessible sites. These three additional sites would be selected based on proximity to comfort stations, ability to widen the parking space, large tent pad space, and levelness of the site. All five sites would meet the proposed guidelines by the U.S. Architectural and

Transportation Barriers Compliance Board (Access Board) for Outdoor Recreation areas. Accessible picnic tables, grills, and campsite signs would be added to each of these sites. Work on these five sites would include grading parking areas and campsites, providing accessible pathways to comfort stations and providing hardened surfaces at each site.

Campground Restroom Rehabilitation – Two Mission 66 comfort stations within the campground would be rehabilitated and the existing historic log comfort station would be repaired. Rehabilitation and repair of the three restrooms would include making them universally accessible and addressing any maintenance needs. Repairs to the log comfort station would be limited to repair of rafter ends and replacement of the existing corrugated metal roof with a corrugated cor-ten metal roof. Modifications to each Mission 66 restroom may include actions such as demolition of some interior walls and partitions, addition of and/or replacement of existing windows and doors, and installation of new plumbing, piping and electrical fixtures. New floor slabs would be added for accessible toilet rooms and a small addition to each building to accommodate an accessible restroom may be necessary. The exterior of the rehabilitated buildings would be similar to the existing buildings but would likely have entry doors moved to the front of the building, opening onto covered porches. Roofs would likely be replaced. Site work would include minimum repair and upgrading of paths and walkways. The specific components necessary for the rehabilitation of the comfort stations and the resulting appearance of each building would be developed more fully among NPS staff during the design phases for this project. This group would evaluate and consider the comments received from the Arizona State Historic Preservation Office and determine the applicability of the Secretary of the Interior's Standards for the Treatment of Historic Properties, park architectural guidelines, and existing management policies, while also addressing the purpose and need for action.

Campground Comfort Station and Vault Toilet Construction – One new comfort station would be constructed at the campground group site in a clearing near the site of the existing toilets. The comfort station would have flush toilets and a total of six-stalls. The building size and design would be similar to the Mission 66 rehabilitated comfort stations, would be fully accessible and would include a corrugated cor-ten metal roof and stucco and vertical siding, designed appropriately for its location within an historic district. This comfort station would be constructed adjacent to the existing gravel road into the group site. A single vault toilet would also be installed in the same general area as the new comfort station and on the site of the existing toilets. The single vault toilet would accommodate wintertime visitor use, when the comfort station would be closed. Site work for both the comfort station and the vault toilet would include the addition of accessible walkways. Up to 1 to 3 small pine trees may need to be removed to accommodate the new comfort station and up to 0.5 acres of ground disturbance would result. The specific design of the vault toilet and comfort station would be developed more fully among NPS staff during the design phases for this project. This group would evaluate and consider the comments received from the Arizona State Historic Preservation Office and determine how best to apply the Secretary of the Interior's Standards for the Treatment of Historic Properties, park architectural guidelines, and existing management policies, while also addressing the purpose and need for action.

Mitigation Measures

The mitigation measures listed below are considered part of the preferred alternative and will be followed during project implementation. These actions were developed to lessen the potential for adverse impacts from implementing the preferred alternative, and have proven to be very effective in reducing environmental impacts on previous projects.

Contractor Orientation. Contractors working in the Park are given orientation concerning proper conduct of operations. This orientation is provided in both written form and verbally at a preconstruction meeting. This policy will continue on proposed projects. Orientation topics will include:

- Wildlife should not be approached or fed.
- Collecting any Park resources, including plants, animals, and historic or prehistoric materials, is prohibited.
- Contractor must have a safety policy in place and follow it.
- A vehicle fuel leakage and spill plan will be developed and implemented for this project.
- Other environmental concerns and requirements discussed elsewhere in this EA would be addressed, including relevant mitigation measures listed below.

Limitation of Area Affected. The following mitigation measures will be implemented to minimize the area affected by construction activities.

- The staging area for the construction office (a trailer), construction equipment, and material storage will be located in previously disturbed areas near the project site. All staging areas will be returned to pre-construction conditions once construction is complete. Standards for this, and methods for determining when the standards are met, will be developed in consultation with the Park Restoration Biologist.
- Construction zones will be fenced with construction tape, snow fencing, or some similar material before any construction activity. The fencing will define the construction zone and confine activity to the minimum area required for construction. All protection measures will be clearly stated in the construction specifications, and workers will be instructed to avoid conducting activities beyond the construction zone as defined by the construction zone fencing.

Soil Erosion. To minimize soil erosion, the following mitigation measures will be incorporated into the action alternatives.

- Standard erosion control measures such as silt fences, sand bags, or equivalent control methods will be used to minimize any potential soil erosion.
- Any trenching operations will be by rock saw, backhoe, track hoe, and/or trencher, with excavated material side-cast for storage. After trenching is complete, bedding material will be placed and compacted in the bottom of the trench and the utility lines installed in the bedding material. Back filling and compaction will begin immediately after the utility lines are placed into the trench, and the trench surface will be returned to pre-construction contours. All trenching restoration operations will follow guidelines approved by Park staff. Compacted soils will be scarified and original contours reestablished.
- A Salvage and Revegetation Plan will be developed for the project by a landscape architect or other qualified individual, in coordination with the Park Restoration Biologist. Any revegetation efforts will use site-adapted native species and/or native seed, and Park policies regarding revegetation and site restoration will be incorporated into the plan. The plan will consider, among other things, the use of native species, plant salvage potential, exotic vegetation and noxious weeds, and pedestrian barriers. Policy related to revegetation will be referenced in NPS Management Policies (NPS 2001b; Chapter 9).

Exotic Vegetation and Noxious Weeds. To prevent the introduction and minimize the spread of exotic vegetation and noxious weeds, the following mitigation measures will be incorporated into the action alternatives.

- Existing populations of exotic vegetation at the construction site will be treated prior to construction activities. Because numerous invasive species have been documented along road corridors on the North Rim and much of the trenching necessary for the waterline upgrades would occur near road corridors, pre-treatment of these areas would be necessary prior to implementation.
- A restoration biologist or designated natural resources representative would be on-site during trenching operations to provide input on tree avoidance and salvage potential.
- All construction equipment that would leave the road (e.g., bulldozers and backhoes) will be pressure washed prior to entering the Park.
- The location of the staging area for construction equipment will be Park-approved and treated for exotic vegetation.
- Parking of vehicles will be limited to existing roads or the staging area.
- Any fill, rock, or additional topsoil needed will be obtained from a Park-approved source.
- All areas disturbed by construction will be revegetated using site-adapted native seed and/or plants.

Water Quality. To minimize potential impacts to water quality, the following mitigation measures will be incorporated into the action alternatives.

- A storm water pollution prevention plan (SWPPP) will be developed by the contractor and approved by the Park prior to any ground-disturbing activities. All National Pollutant Discharge Elimination System (NPDES) requirements will be met.
- Standard erosion control measures such as silt fences, sand bags, or equivalent control methods will be used to minimize any potential sediment delivery to streams.

Special Status Species. To protect any unknown or undiscovered threatened, endangered, or special status species, the construction contract will include provisions for the discovery of such. These provisions will require the cessation of construction activities until Park staff evaluates the project impact on the discovery and will allow modification of the contract for any protection measures determined necessary to protect the discovery. Mitigation measures for known special status species are as follows:

California Condor

- Prior to the start of a construction project, the Park will contact personnel monitoring California condor locations and movement within the Park to determine the locations and status of condors in or near the project area.
- If a condor occurs at the construction site, construction will cease until it leaves on its own or until permitted personnel employ techniques that result in the individual condor leaving the area.
- Construction workers and supervisors will be instructed to avoid interaction with condors and to contact the appropriate Park or Peregrine Fund personnel immediately if and when condor(s) occur at a construction site.
- The construction site will be cleaned up at the end of each day that work is being conducted (i.e., trash disposed of, scrap materials picked up) to minimize the likelihood of condors visiting the site. Park condor staff will complete a site visit to the area to ensure adequate clean-up measures are taken.

- To prevent water contamination and potential poisoning of condors, a vehicle fluid- leakage and spill plan will be developed and implemented for this project. This plan will be reviewed by the Park biologist for adequacy in addressing condors.
- If a new structure occurs on the rim or above tree line in other areas, there may be a need to install condor deterrent devices on the structure. This will be evaluated on a case-by-case basis by the Park wildlife biologist.
- If non-nesting condors occur within 1 mile of the project area, blasting will be postponed until condors leave or are hazed by permitted personnel.
- If condor nesting activity is known within 1 mile of the project area, then blasting activity will be restricted during the active nesting season, if viable nests persist. The active nesting season is February 1 to October 15, or until young are fully fledged. These dates may be modified based on the most current information, in consultation with the Park biologist and the USFWS.
- If condor nesting activity is known within 0.5 mile of the project area, then light and heavy construction in the project area will be restricted during the active nesting season, if viable nests persist. The active nesting season is February 1 to October 15, or until young are fully fledged. These dates may be modified based on the most current information, in consultation with the Park biologist and the USFWS.

Mexican Spotted Owl (MSO)

- If a construction project occurs within a Protected Activity Center (PAC) with no known nest site, then all construction activity will be restricted to the non-breeding season (September 1 – February 28). However, if the project in a PAC is at least 0.8 km (0.5 mile) from known nest sites and the project does not include blasting, then the project can be implemented during the breeding season. The breeding season is March 1 – August 31.
- If a construction project outside of PACs occurs within 1.6 km (1 mile) of a known PAC nest or roost site, the boundary of a PAC where the nest or roost site is not known, or unsurveyed restricted, protected, or predicted MSO habitat, then all blasting in that project area will be restricted to the non-breeding season (September 1 – February 28).
- If a construction project outside of PACs occurs within 0.8 km (0.5 mile) of a known PAC nest or roost site, the boundary of a PAC where the nest or roost site is not known, or unsurveyed restricted, protected, or predicted MSO habitat, then light and heavy construction activity in that project area will be restricted to the non-breeding season (September 1 – February 28).

Cultural Resources. To minimize the impacts of construction activities on cultural resources, the following mitigation measures will be incorporated into the action alternatives.

- If previously unknown archeological resources are discovered during the course of the project, a park archeologist will be contacted immediately. All work in the immediate vicinity of the discovery would be halted until the resources could be identified and documented and an appropriate mitigation strategy developed, if necessary, in accordance with the stipulations of the 1995 Programmatic Agreement among the National Park Service, the Arizona State Historic Preservation Officer, and the Advisory Council on Historic Preservation regarding the General Management Plan/Environmental Impact Statement, Grand Canyon National Park, Arizona.
- All workers would be informed of the penalties of illegally collecting artifacts or intentionally damaging any archeological or historic property. Workers would also be

informed of the correct procedures if previously unknown resources were uncovered during construction activities.

- Monitoring of trenching across previously undisturbed corridors would be undertaken by a qualified archeologist.
- All undertakings affecting historic buildings and structures will be carried out in accordance with the Secretary of the Interior's Standards for the Treatment of Historic Properties (60 FR 35842-35844) and other applicable NPS cultural resources policies and guidelines.
- Replacement of existing fire hydrants and installation of new hydrants in historic districts has the potential to impact the surrounding district. The colors chosen and the exact placement of the hydrants will be done in consultation with park cultural resource staff to ensure adverse impacts are minimized.
- The specific components necessary for the rehabilitation of the restrooms within the campground and the resulting appearance of each building would be developed more fully among NPS staff during the design phases of this project. This group would evaluate and consider the comments received from the SHPO and determine the applicability of the Secretary of the Interior's Standards for the Treatment of Historic Properties, park architectural guidelines, and existing management policies, while also addressing the purpose and need for action.

Visual Resources. To minimize visual impacts, mitigation measures will include the following:

- Trenching for underground utilities will be limited as much as possible to a 10-foot wide fenced construction zone. Clearing of trees and understory will be feathered to blend with natural openings in the forest canopy.
- Natural, muted colors will be used to blend any metal surfaces into the landscape.
- All contractors will use Lindbergh Hill for primary staging to minimize ground disturbance and to decrease the amount of construction equipment visible to visitors. Secondary staging would occur in existing disturbed areas in or near the campground as needed and as approved by park staff.

Visitor Experience. The following mitigation measures will be incorporated into the action alternatives to minimize the impacts of construction activities on the visitor experience:

- The Park may consider restricting construction activities during peak use days such as holidays and some weekends during the busiest times of the year to minimize disruption to visitors.
- Traffic in any one direction will not be stopped for more than 15 minutes to minimize disruption to traffic flow.
- Unless otherwise approved by the Park, operation of heavy construction equipment will be restricted to 8:00 am to 6:00 pm in the summer (May 1- September 30) and to 9:00 am to 5:00 pm during the rest of the year.
- Information regarding implementation of this project and other foreseeable future projects would be shared with the public upon their entry into the park during construction periods. This may take the form of an informational brochure or flyer about the projects distributed at the gate and sent to those with reservations at park facilities, postings on the park's website, press releases, and/or other methods. The purpose of these efforts would be to minimize the potential for negative impacts to the visitor experience on the North Rim during implementation of this project and other planned projects during the same construction season.

Park Operations. The following mitigation measures will be incorporated into the action alternatives to minimize the impacts of construction activities on park operations:

- An independent contract inspector will be hired so Park staff will not need to monitor day to day contract compliance for this and other projects, when the amount of work exceeds the Park staff's capacity for adequate monitoring.

Air Quality. Air quality impacts of the action alternatives are expected to be temporary and localized. To minimize these impacts, the following actions will be taken:

- To reduce entrainment of fine particles from hauling material, sufficient freeboard will be maintained and loose material loads (aggregate, soils, etc.) will be tarped.
- To reduce tailpipe emissions, construction equipment will not be left idling any longer than is necessary for safety and mechanical reasons.
- To reduce construction dust in the short term, water will be applied to problem areas. Equipment will be limited to the fenced project area to minimize soil disturbance and consequent dust generation.
- Landscaping and revegetation will control long-term soil dust production. Mulch and the plants themselves will stabilize the soil and reduce wind speed/shear against the ground surface.

ALTERNATIVES CONSIDERED

The Environmental Assessment evaluated three alternatives in detail for addressing the purpose and need for action; The No Action alternative (Alternative A), the Preferred Alternative (Alternative C) and one additional action alternative (Alternative B). The preferred alternative is as described previously in this document in detail. The other alternatives considered are described below.

Alternative A – No Action Alternative: This alternative does not meet the purpose and need for the project, but provides a basis for comparison with the action alternatives. Alternative A would maintain the existing conditions at the North Rim. A developed zone for the North Rim has been identified in the 1995 GMP and is used to guide management actions. This developed zone, which primarily includes Bright Angel peninsula but also encompasses the North Rim Entrance Road and roads out to the Walhalla Plateau comprises approximately 1,127 acres within the Bright Angel watershed subunit, or approximately 6% of the subunit. Approximately 234 acres of this, or 21%, is disturbed by past activities and developments. Existing developments include roads, trails, parking areas, buildings, and utilities. The North Rim receives most of its visitation between May and October, when facilities at the North Rim are open. Visitation peaks in the summer months of June and July and is very limited in winter when snow blocks the road. Park staff is present at the North Rim throughout the year, with limited staffing in the winter, and perform general maintenance functions.

Under the no action alternative, no improvements would be made to the North Rim campground or to the water distribution system. Campground roads would remain in their present condition, restrooms would not be rehabilitated, new restrooms would not be constructed and the existing campground entrance kiosk would remain. The water distribution system would not be improved and potable water systems lines would continue to leak and freeze in the shoulder and winter seasons. Water flow and pressure would remain inadequate for fire protection for the North Rim. The reclaimed water line would remain in use as a gravity flow line serving as fire protection only for the lodge area. New hydrants and hose boxes would not be added.

Alternative B – The North Rim Campground entrance would be reconfigured under Alternative B, including the following actions:

- Construct two new entry lanes and one new exit lane
- Construct a new parking area entry
- Construct four new tent campsite access spurs
- Remove the existing fee collection kiosk (Figure 8) and construct a new fee collection booth between the new entrance and exit lanes.
- Remove pavement and revegetate a small area near the existing kiosk.

The reconfiguration of the campground entrance under Alternative B would result in approximately 0.5 acres of new ground disturbance and would require the removal of approximately 30 to 35 ponderosa pine trees.

The project components common to both the Preferred Alternative and Alternative B are described previously under the description of the Preferred Alternative, and include: 1) upgrading the existing water distribution system through replacement of existing piping, use of the reclaimed pipeline for potable water for the fire protection system, installation of a new pumping station, replacement of some fire hydrants and the addition of some new fire hydrants; 2) repaving roads within the campground; 3) rehabilitating five existing campsites into universally accessible campsites; 4) campground restroom and walkway rehabilitation; and 5) construction of one comfort station and one vault toilet at the group site.

Other Alternatives Considered But Dismissed from Detailed Analysis

The Environmental Assessment also includes a discussion of several other alternatives considered but dismissed from detailed analysis. Two other alternatives for addressing the purpose and need for the campground entrance reconfiguration were preliminarily identified during the October 1999 Value Analysis. The first alternative included reconfiguration of the existing campground parking for use as the campground drive-through entrance and exit. Two entry lanes and one exit lane would be constructed within the footprint of the existing parking area and a new drive-up fee collection station would be constructed. This alternative maximized the amount of space for vehicle queuing, minimized disturbance of new ground (all work would be within the existing parking area), but eliminated needed space for amphitheater parking and overflow parking. For this reason, this alternative was not considered further.

The second alternative included construction of two new entry lanes and one exit lane into the campground (similar in location to that described later in this document under Alternative B), with removal and relocation of tent camp sites disturbed by this new road, and construction of a new drive-up fee collection station. This alternative would allow for some vehicle queuing away from the camper store, would provide an easy exit from the campground, but would result in a loss of some parking spaces and the need to relocate campsites. For these reasons, this alternative was not considered further.

During preliminary discussions regarding a proposed new walk-up registration building, several other sites for this registration building were discussed, all of them within or adjacent to the existing parking area. Locating the building in an existing log restroom, now used for storage, was discussed but eliminated because the building is too small and poorly located to effectively function as visitor check in and registration. Locating the building adjacent to the parking area but closer to the existing kiosk was discussed but eliminated due to the fact that it would have less visibility to campground visitors as they enter the parking area. Locating the building adjacent to the parking area but more centrally located within the parking area was discussed but eliminated due to the need to remove more trees for building construction here and that it may be difficult to see as campground visitors enter the parking area. For these reasons, these alternatives were not considered further.

Two other alternatives for addressing the purpose and need for the improvements to the water distribution system were preliminarily identified during the January 2001 Value Analysis. The first alternative included a dual source with dual piping system. In this alternative, the system configuration would be identical to the existing system in that there would be two functioning systems; a potable water system and a reclaimed water system. New reclaimed water lines would be installed in the Lodge area, fire hydrants would be on the reclaimed system only and the majority of the potable water lines would be replaced to reduce leaking and allow winter operation. A pumping station would also be added to boost pressure. While this alternative would result in minimal ground disturbance and would implement and expand the reclaimed water system, it would also require maintenance of a reclaimed water reuse permit, would require the operation of dual pumping systems and would be more difficult to operate than other alternatives. For these reasons, this alternative was not considered further.

The second alternative evaluated during the January 2001 Value Analysis included a single source with single piping system. In this alternative, all potable water, fire hydrants and fire sprinklers would be on the potable water system. The majority of the potable water lines would be replaced to reduce water loss and allow winter operation. The new lines would be sized to meet the potable water and fire water demands. The existing reclaimed water system would be abandoned in place. A pumping station would be installed to boost pressure of the potable water system, for both fire and domestic water demands, to the upper two developments. While this alternative would be relatively easy to operate, it would be the least reliable of the systems evaluated because it would rely on a single piping system, would result in more disturbance in the developed areas to convert hydrants to the potable water system, and would preclude the use of the reclaimed water system in the future. For these reasons, this alternative was not considered further.

ENVIRONMENTALLY PREFERABLE ALTERNATIVE

NPS policy requires identification of an environmentally preferred alternative. The environmentally preferred alternative is determined by applying the criteria suggested in NEPA, which is guided by the CEQ. The CEQ provides direction that "[t]he environmentally preferred alternative is the alternative that would promote the national environmental policy as expressed in NEPA's Section 101:"

1. Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations;
2. Assure for all generations safe, healthful, productive, and esthetically and culturally pleasing surroundings;
3. Attain the widest range of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable and unintended consequences;
4. Preserve important historic, cultural, and natural aspects of our national heritage and maintain, wherever possible, an environment that supports diversity and variety of individual choice;
5. Achieve a balance between population and resource use that will permit high standard of living and a wide sharing of life's amenities; and
6. Enhance the quality of renewable resources and approach the maximum attainable recycling of depleted resources.

Using selection factors from the Choosing by Advantages process and through the process of internal scoping, scoping with the public and other agencies, the environmentally preferred alternative selected is Alternative C, the Agency's preferred alternative. Alternative C best meets the purpose and need for action and best addresses the overall Park Service objectives and evaluation factors. Alternative C greatly minimizes the level of tree removal and new ground disturbance necessary to meet the purpose and need for action, when compared to Alternative B and better meets evaluation criteria 1 and 4 above. Alternative C also minimizes intrusion into the Inn and Campground Historic District and addresses evaluation

criterion 4 more so than Alternative B. No new information came forward from public scoping or consultation with other agencies to necessitate the development of any new alternatives, other than those described and evaluated in this document. Alternative C is recommended as the Preferred Alternative and meets both the Purpose and Need and the project objectives.

WHY THE PREFERRED ALTERNATIVE WILL NOT HAVE A SIGNIFICANT EFFECT ON THE HUMAN ENVIRONMENT

As defined in 40 CFR §1508.27, significance is determined by examining the following criteria:

Impacts that may be both beneficial and adverse. As fully discussed in the Environmental Assessment, the preferred alternative will not result in measurable impacts to air quality; soundscape; floodplains; wetlands; prime and unique agricultural land; local or regional socioeconomics; or minorities or low-income populations or communities.

Implementation of the preferred alternative would result in negligible to minor adverse impacts to soils and water through compaction and displacement during construction.

Implementation of the preferred alternative would result in minor, adverse short- and long-term impacts to vegetation through approximately 3.25 acres of ground disturbance, exotic species introduction potential, and the removal of approximately 14 – 28 trees.

Implementation of the preferred alternative would result in minor to moderate impacts to visitor experience and park operations that would be beneficial in the long-term due to improvement in facilities, but adverse in the short-term during construction.

Implementation of the preferred alternative would result in minor to moderate beneficial impacts to historic structures with improvements in the fire protection system and campground restroom facilities. After applying the Advisory Council on Historic Preservation's criteria for adverse effects (36 CFR, Part 800.5, Assessment of Adverse Effects), the National Park Service determines that the North Rim campground rehabilitation and water distribution system improvements would have no adverse effect on identified historic properties. Concurrence with this determination was received from the State Historic Preservation Officer (SHPO) on 5 May 2003.

Implementation of the preferred alternative would result in minor short-term adverse impacts to general wildlife populations during construction and vegetation disturbance. Impacts to Kaibab squirrels, Northern goshawks and peregrine falcons would be negligible, adverse and long-term. For purposes of Section 7 consultation under the Endangered Species Act, implementation of the preferred alternative may affect, but is not likely to adversely affect, the Mexican spotted owl or California condor. Concurrence on these determinations was received from the U.S. Fish and Wildlife Service on 9 July 2002 and on 24 April 2003.

Degree of effect on public health or safety. The Environmental Assessment evaluated impacts to park operations and visitor experience. This evaluation determined that implementation of the preferred alternative would result in minor impacts to visitor experience that would be adverse in the short-term during construction. Impacts to visitor safety would primarily be the result of short-term impacts during construction. Adherence to mitigation measures designed to minimize safety risks and adverse impacts to visitor experience during project implementation should address these limited risks. It also determined that implementation of the preferred alternative would result in moderate, beneficial, long-term impacts to visitor experience due to improvements in the number and quality of accessible campsites and restroom rehabilitation. The preferred alternative would alleviate vehicle lines in front of the Camper Store, reducing the likelihood of pedestrian/vehicle conflicts in this area. Rehabilitation of the water system

would also enhance the Park's ability to provide adequate fire protection and potable water to developed areas, benefiting the safety of park visitors and employees.

Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas. As fully discussed in the Environmental Assessment, the preferred alternative will not result in measurable impacts to air quality; soundscape; floodplains; wetlands; prime and unique agricultural land; local or regional socioeconomics; or minorities or low-income populations or communities. No wild and scenic rivers are designated near the North Rim and none will be affected by implementation of the preferred alternative.

The site of one small segment of the water distribution system near the water tanks is considered critical habitat for the Mexican spotted owl (MSO). MSO surveys have occurred repeatedly on the North Rim over the last several years. The most recent surveys of the project area in 2001 and 2002 did not locate any MSO. While habitat suitable for nesting and roosting is present below the rim edge near the project site, this habitat has been surveyed to protocol and is at present unoccupied. The nearest known occupied habitat is greater than 1 mile southwest of the project area. Potential adverse impacts of disturbance of habitat at the project site are minimized by the fact that surveys have been conducted and no MSO have been detected; that the site is small, transitions into ponderosa pine habitat nearby and is located near the developed area and roadway, and that the nearest known occupied habitat is greater than 1 mile away. Although habitat in this area would be slightly modified, the U.S. Fish and Wildlife Service has concurred with the Park that implementation of this segment of the water distribution system improvements is not likely to adversely affect MSO or its habitat.

The campground is located within the North Rim Inn and Campground Historic District. The North Rim Inn and Campground District was listed on the National Register of Historic Places in 1982. Implementation of the preferred alternative would not result in any changes to the campground entrance road, substantially minimizing the potential for adverse impacts to the surrounding historic district and cultural landscape. Removal of the existing non-historic kiosk and construction of a new registration building in the location proposed, which is in the historic district, would require that the design of the building be carefully planned by the park's historical architect and in consultation with the SHPO. The registration building would be designed in accordance with the Secretary of the Interior's Standards for the Treatment of Historic Properties and this would be distinctive yet compatible with the surrounding district.

Rehabilitation of Mission 66 restrooms has been addressed in consultation with the SHPO. These comfort stations do not exhibit a level of significance sufficient to the exceptions of the 50 year guideline, and are currently considered to be ineligible for inclusion to the National Register. However, the implementation of mitigation measures allows for flexibility during later design development to determine the applicability of the Secretary of the Interior's Standards to the Mission 66 restroom rehabilitation.

Because the existing water system is considered inadequate to properly protect all of the resources on the North Rim, including historic structures, or to adequately control a fire that might occur on the Bright Angel peninsula under drought conditions, improvements in the water system has the potential to result in beneficial impacts to cultural resources. Replacement of existing fire hydrants and installation of four new hydrants in historic districts has the potential to adversely impact the districts. The colors chosen and the exact placement of the hydrants would be done in consultation with park cultural resource staff to ensure adverse impacts are minimized, and is listed as a mitigation measure.

Consultation with concerned tribal officials, Arizona State Historic Preservation Officer, and U. S. Fish and Wildlife Service has been completed.

Degree to which effects on the quality of the human environment are likely to be highly controversial. There were no highly controversial effects identified during either preparation of the environmental assessment or the public review period.

Degree to which the possible effects on the quality of the human environment are highly uncertain or involve unique or unknown risks. There were no highly uncertain, unique or unknown risks identified in the environmental assessment or during the public review period.

Degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration. The preferred alternative neither establishes a precedent for future actions with significant effect nor represents a decision in principle about a future consideration.

Whether the action is related to other actions with individually insignificant but cumulatively significant impacts. Impacts of the preferred alternative identified in the EA/AEF were to soils and water, vegetation, wildlife and special status species, cultural resources, visitor experience and park operations. As described in the EA/AEF, a variety of past, present, and reasonably foreseeable future actions have affected or may affect resources in the Bright Angel watershed subunit. These were evaluated fully in the EA/AEF. Implementation of the preferred alternative in combination with past, present and reasonably foreseeable future actions would result in impacts to resources that range from negligible to moderate.

Degree to which the action may adversely affect districts, sites, highways, structures, or objects listed on National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources. The campground and portions of the water distribution system occur within National Register Historic Districts. These are sensitive cultural resources and have been carefully considered throughout the planning process for this project, as documented in the EA/AEF for this project. The State Historic Preservation Office has concurred with the Park's determination that implementation of the preferred alternative would not adversely impact historic properties.

All project areas have had previous archeological survey and the potential for impacts to archeological sites is minimal. On-site monitoring of trenching necessary for the water distribution system improvements would be used to minimize the potential for impacts to previously unknown archeological resources. Consultation with the concerned tribal officials has been completed.

If previously unknown archeological resources are discovered during construction, all work in the immediate vicinity of the discovery will be halted until the resources are identified and documented. An appropriate mitigation strategy, if necessary, will be developed in consultation with the Arizona State Historic Preservation Office and concerned tribal officials.

Degree to which the action may adversely affect an endangered or threatened species or its critical habitat. The California condor was listed as an endangered species in 1967. A nonessential, experimental population of California condors has been established in Northern Arizona, and within Grand Canyon National Park the condor has the full protection of a threatened species. It has been determined by park staff that implementation of the preferred alternative "may affect, but is not likely to adversely affect" the California condor. This determination is based on the potential that condors could be attracted to the increased activity at the project site during construction. Mitigation measures have been developed jointly between park staff and the U.S. Fish and Wildlife Service (FWS) to minimize the potential for adverse impacts to the condor during project implementation. These measures are included as part of the proposed

action and identified under the preferred alternative. The FWS has been consulted and concurred with the determination that condors may be affected, but are not likely to be adversely affected by the implementation of the preferred alternative.

The Mexican spotted owl (MSO) was listed as a threatened species in 1993 and parts of Grand Canyon National Park were designated as critical habitat in 2001. It has been determined by park staff that implementation of the preferred alternative "may affect, but is not likely to adversely affect" MSO. This determination is based on the fact that some segments of the water distribution system improvements project occur within 0.5 miles of a Protected Activity Center and that a small segment of the pipeline occurs within spotted owl critical habitat. Mitigation measures have been developed jointly between park staff and the U.S. Fish and Wildlife Service (FWS) to minimize the potential for adverse impacts to the MSO during project implementation. These measures are included as part of the proposed action and identified under the preferred alternative. The FWS has been consulted and concurred with the determination that MSO may be affected, but are not likely to be adversely affected by implementation of the preferred alternative.

Whether the action threatens a violation of Federal, state or local environmental protection law. The preferred alternative violates no federal, state, or local environmental protection laws.

IMPAIRMENT OF PARK RESOURCES OR VALUES

In addition to determining the environmental consequences of the preferred and other alternatives, National Park Service policy (*Management Policies*, 2001) requires analysis of potential effects to determine whether or not actions will impair park resources. The fundamental purpose of the National Park System, established by the Organic Act and reaffirmed by the General Authorities Act as amended, begins with a mandate to conserve park resources and values. National Park Service managers must always seek ways to avoid, or to minimize to the greatest degree practicable, adverse impacts on park resources and values. However, the laws do give the National Park Service the management discretion to allow impacts to park resources and values when necessary and appropriate to fulfill the purposes of the park, as long as the impact does not constitute impairment of the affected resources and values. Although Congress has given the National Park Service the management discretion to allow certain impacts within parks, that discretion is limited by the statutory requirement that the National Park Service must leave park resources and values unimpaired, unless a particular law directly and specifically provides otherwise. The prohibited impairment is an impact that, in the professional judgment of the responsible National Park Service manager, will harm the integrity of park resources or values, including the opportunities that otherwise will be present for the enjoyment of those resources or values. Impairment may result from National Park Service activities in managing the park, visitor activities, or activities undertaken by concessionaires, contractors, and others operating in the park. An impact to any park resource or value may constitute impairment. An impact will be more likely to constitute impairment to the extent that it affects a resource or value whose conservation is:

- Necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park;
- Key to the natural or cultural integrity of the park; or
- Identified as a goal in the park's general management plan or other relevant NPS planning documents.

Because there will be no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of Grand Canyon National Park; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in the park's general management plan or other relevant National Park Service planning documents, there will

be no impairment of Grand Canyon National Park's resources or values as a result of implementation of the preferred alternative.

PUBLIC INVOLVEMENT

A public scoping letter, which included several North Rim projects including the campground rehabilitation and water distribution system improvements proposals, was submitted to a 300-person Grand Canyon National Park mailing list on 29 November 2000. A public scoping letter that described the parkwide restroom rehabilitation proposal, including the North Rim campground and group site, was submitted to this same park mailing list on 8 December 2000. These letters were also posted on the park's website. The purpose of the scoping letters was to describe the proposed actions to any interested/affected parties and solicit comments from those who may have issues with the proposed action(s). The north rim projects public scoping was a topic of discussion at the monthly GMP community meeting held at the park on 11 January 2001. A notification and short article on north rim project proposals was published in the Williams/Grand Canyon newspaper, in the 3-9 January 2001 edition. These projects were also included in the North Rim issue of the Park's Project Management Team Newsletter that was distributed to an approximately 480-member mailing list in April 2003.

The EA/AEF was made available for public review and comment during a 30-day period ending 30 April 2003 through a combination of direct mailing, issuance of a press release and posting on the park's website. Two responses were received. One simply requested a hard copy of the document and one, from the Hopi Tribe, deferred consultation on this project to the SHPO.

NPS staff met with personnel from U.S. Fish and Wildlife Service (USFWS) and Arizona Game and Fish Department on 13 December 2000 to discuss this project proposal and other future proposals. NPS staff met with USFWS several times between March and June 2002 to discuss this project proposal in conjunction with a batch consultation for several construction projects, including the North Rim campground rehabilitation and water distribution system improvements, throughout the Park. Concurrence on the batch consultation was received from USFWS on 9 July 2002 and indicated that the projects may affect, but are not likely to adversely affect, the Mexican spotted owl and the California condor. Consultation with USFWS regarding a small portion of the water distribution system near the water tanks was conducted separately. Concurrence on this portion of the project was received on 28 April 2003.

Consultation between the NPS and the SHPO on this project is complete. Consultations throughout the planning process for this project included discussion during an on-site meeting in August 2000 and quarterly meetings on 16 October 2002 and 20 February 2003. Concurrence was received on 5 May 2003.

CONCLUSION

The preferred alternative does not constitute an action that normally requires preparation of an environmental impact statement (EIS). Negative environmental impacts that could occur are negligible to moderate in effect. There are no unmitigated adverse impacts on public health, public safety, threatened or endangered species, sites or districts listed in or eligible for listing in the National Register of Historic Places, known ethnographic resources, or other unique characteristics of the region. No highly uncertain or controversial impacts, unique or unknown risks, cumulative effects, or elements of precedence were identified. Implementation of the action will not violate any federal, state, or local environmental protection law.

Based on the foregoing, it has been determined that the project does not constitute a major federal action significantly affecting the quality of the human environment and an EIS will not be required for this project and thus will not be prepared.

Recommended: _____ 5/20/03
Jeffrey Cross — Date
Science Center Director, Grand Canyon National Park

Recommended: _____ 5/25/03
for Joseph F. Alston — Date
Superintendent, Grand Canyon National Park

Approved: _____ 6/2/03
Karen P. Wade — Date
Intermountain Regional Director